

ABSTRACT OF THE DISCLOSURE

A method for forming a contact opening is provided. After forming transistors on a substrate, a stacked resist layer comprising a resist layer without a silicon element
5 and a resist layer with a silicon element covers the transistors and the substrate. The stacked resist layer is defined to cover a region of a contact opening to be formed as a mask. A selective growth process, such as a liquid phase oxide deposition (LPOD), is carried out to form a
10 selective silicon oxide layer on the silicon-containing surface and fills the space between the stacked resist layer. After the stacked resist layer is removed, a contact opening is formed in the silicon oxide layer and a step of the etching process is eliminated.